

Scope of Work – Singh Walnut Orchard:

The Singh property is 40.4 acres located west of Mud Creek, north of the Bidwell-Sacramento River State Park and adjacent to the Sacramento River in Butte County, Ca. This property is currently farmed to walnuts, features historic river channel topography and existing shaded riverine aquatic habitat along the river (Map 1: Proposed project location map).

1. Scope of the Project:

The Nature Conservancy requests \$50,000 to conduct baseline biological and environmental surveys, implement interim restoration and start up stewardship actions and develop a long term restoration and management plan for the Singh property. The Nature Conservancy plans to acquire the property with private funds. To complete the restoration and ensure long term protection of the riparian and aquatic habitats interim restoration activities and a long-term restoration and management plan is needed. Once the long term management and restoration plan is complete The Nature Conservancy expects eventual transfer of ownership and management to a state, or federal agency or non- profit organization.

Baseline evaluations will include aquatic and terrestrial biotic surveys of the property and quantitative descriptions of nearby reference habitats. Reference conditions are used to set restoration goals. Baseline evaluations will include descriptions of the environmental template (geomorphology) and the dominant physical processes (hydrology) used to complete the restoration design.

Interim restoration and start up stewardship may include “no regret” actions that are anticipated to immediately benefit target species and habitats. For example, planting shaded riverine aquatic (SRA), on the edge of agricultural properties is an interim restoration action. Fencing and signing sensitive areas, or planting cover crops and buffer strips may be considered start up stewardship. Monitoring objectives will include evaluating interim restoration benefits to the local anadromous fish population.

The restoration and management plan typically lists priority restoration elements, guiding principles, interim and long term goals, management strategies and third party impacts. The restoration plan will also include detailed restoration alternatives for reconnection of the river and floodplain, the creation and maintenance of streamside habitats, and the creation of buffer strips to improve water quality and Allochthonous inputs for the benefit of anadromous fish populations will be evaluated during the planning process. Because of the sensitive nature of restoration and flood impacts in this area we plan on detailed hydrological analysis of restoration alternatives and extensive adjacent landowner involvement, through one or two on-site meetings, in the planning process. The most appropriate long-term owner of the property will also determined during the planning process.

The proposed project adds to a long and successful history of acquisition, restoration, planning and management activities supported by public and private funding to protect and restore riparian and aquatic habitats along the Sacramento River. Notification of the proposed project has gone to Butte County, adjacent landowners and the SB1086 Advisory Council and Riparian Habitat Committee. The Advisory Council endorsed the project as consistent with the SB1086 principals, guidelines and goals.

This property is part of The Nature Conservancy’s Chico Landing sub-reach planning and management program (river mile 184-206). Sub-reach planning focuses on protection and restoration of riparian and aquatic habitats at a larger river scale (20 river miles) and is the bridge between individual parcels and the development of the Sacramento River Conservation Area. Site-specific management planning also addresses potential changes in hydrology and geomorphology, local economic impacts, and other issues associate with ongoing riparian protection and restoration work. Site specific planning ensures input from local landowners, public agencies, and other interested parties.

2. Benefits of the project:

The primary beneficiaries of this award are juvenile chinook salmon of all races (spring, fall, late fall and winter run) and steelhead trout. These species, and non-game fish including Sacramento sucker, Sacramento pike-minnow, hardhead, hitch, tule perch and Sacramento splittail, have been documented rearing in Mud and Big Chico creeks near the project site (P. Maslin, pers com). Maslin also estimates that 50,000 juvenile salmonids rear in the lower portions of the Sacramento River's intermittent tributaries (Maslin, et al. 1998. Intermittent Streams as Rearing Habitat for Sacramento River Chinook Salmon).

The anticipated direct benefits of the proposed project are to increase the quality and quantity of essential spawning and rearing habitats and migratory pathways for chinook salmon, steelhead, Sacramento splittail, and other declining native species. The protection and restoration of the Singh property will help create more complex and continuous shoreline vegetation, increase available woody debris, and broaden the riparian buffer providing improved refugia for juvenile fish. Leaf and insect drop in shallow aquatic habitats is expected to help increase the survival and health of juvenile salmonids and other declining species.

The anticipated long term ecological benefits of the proposed project are to help protect and facilitate enhancement of the meanderbelt and associated floodplain of the Sacramento River. Important ecological processes that create and maintain natural channel and bank conditions will be restored including sediment transport, channel erosion and deposition, and ecological succession.

The project will also provide protection for riparian forest and streamside vegetation. Consistent with SB1086 objectives, the project contributes to the long-term goal of restoring an extensive and continuous riparian forest corridor that will help stabilize the channel; shape submerged aquatic habitat structure; and benefit the aquatic environment by contributing shade, overhead canopy, instream cover, and runoff filtering capacity. Other species that will potentially benefit from this project are: Swainson's hawk (state threatened), western yellow-billed cuckoo (state threatened), bank swallow (state threatened), shorebird and wading bird guilds, neo-tropical migratory bird guild, valley elderberry longhorn beetle (federal threatened), and bald eagle.

This project uses natural processes as the primary restoration agent to benefit the ecosystem. Because the Singh property is expected to be placed under long-term ownership that provides conservation management the proposed project's ecosystem benefits will both endure and increase with time as natural restoration process creates a more complex and resilient system.

3. Monitoring and data evaluation

The primary benefit of interim restoration actions will be the creation and improvement of shaded riverine aquatic (SRA) habitat. A critical step in planning ecological restoration projects are surveys of the existing biological populations and the existing environmental conditions. The project will collect detailed information on the site's existing biological and environmental conditions. Current ecological models are used to evaluate the data and plan restoration activities.

Table 1 Monitoring objectives for Singh Orchard baseline assessment, interim restoration and long term planning.

Biological and ecological objective	Question and hypotheses to be evaluated	Monitoring variables and data collection approach	Evaluation approach	Comments
Measure change in amount of available quality anadromous fish habitat due to the proposed project.	What is the extent and quality of shaded riverine aquatic (SRA) habitat.	Describe bank complexity, measure cover, length and width of SRA.	Compare initial pre-project conditions to post-project conditions (following interim restoration actions)	Habitat Inventory methods from the California Stream Habitat Restoration Manual (CDF&G 1998).
Survey anadromous fish population patterns	Which habitats are anadromous fish using on this site?	Seine and fyke net sampling in different habitats	Population and abundance prioritizes restoration actions	Fish sampling methods from California Stream Habitat Restoration Manual (CDF&G 1998).
Survey for terrestrial wildlife	Are there sensitive wildlife species present?		Presence of sensitive species may modify restoration designs	
What are the hydrologic impacts of restoration actions?	Does restoration negatively affect flood water surface elevations?	HEC-RAS modeling of river cross sections under alternative restoration scenarios	Stakeholder involvement in designing and evaluating restoration alternatives.	
Describe current and potential vegetation communities.	What is the distribution and composition of native plant communities?	Line transect sampling among different forest types and restoration areas.	Description of plant communities may affect restoration designs and set goals for restoration	

4. Work to be performed and deliverables.

Project Tasks.

Task 1. Conduct baseline assessments

- 1a. Bio assay (aquatic and terrestrial fauna)
- 1b. Current and potential vegetation
- 1c. Physical setting (geomorphology and hydrology)

Task 2. Implement interim restoration and start up stewardship

Task 3. Prepare long term restoration and management plan

Deliverable 1. Interim restoration and start up stewardship report. A detailed report summarizing the actions taken and their performance to date. Due one month after project end date.

Deliverable 2. Long term restoration and management plan. A document that outlines the long term goals and objectives for the parcel, funding strategies and restoration standards. This document will support and coordinate with sub reach scale planning and restoration efforts. The baseline assessments will be included as appendices to the main restoration document. Due at project end date.

Deliverable 3. Two site visits for CVPIA staff, one at project initiation and one at project completion.

5. Budget and costs tables

Table 2. Cost breakdown table for Singh Orchard baseline assessment, interim restoration and long term planning.

Project phase and task	Direct labor hours and salary	Benefits	Overhead Labor (general, admin. And fee)	Service contracts	Material and acquisition contracts	Misc. costs	Totals
Task 1 Baseline assessments	1200	450	3330	15,000		20	\$20,000
Task 2 Interim restoration and startup stewardship	1200	450	1550	6600		200	\$10,000
Task 3. Long term restoration and management plan	2400	900	3260	13,000		440	\$20,000
Totals	4800	1800	8140	34,600		660	\$50,000

Budget costs:

Direct salary and benefits of \$6,600 are calculated for all tasks described in the Scope of Work including baseline assessment, interim restoration and startup stewardship, and restoration and management plan activities. Benefits are calculated at 37.5% of salary paid for hours worked in accordance with our Negotiated Indirect Costs Rate Agreement (NICRA) fringe benefit rate.

Service Contracts of \$32,000 are anticipated to include anadromous fish surveys, landbird surveys, plant ecology, hydrology, geomorphology, restoration planning and other proposed work. Some of the work in this category may be obtained from a group of vendors that the Conservancy uses on a regular basis and pays from invoice rather than through a written contract. It is anticipated that California State University, Chico Research Foundation will conduct the anadromous fish, plant ecology, and restoration planning work. Point Reyes Bird Observatory will conduct the landbird surveys.

Overhead/Indirect costs of \$8,240 included in this proposal are 20% of direct salaries and benefits and service contracts—our approved NICRA indirect cost rate, which is 20% of total direct project costs, including subcontracts but excluding the purchase price of any land interests. The indirect portion includes costs associated with general office requirements and general staff as well as legal and grants administration staff.

Table 3. Estimated quarterly budget for Singh Orchard baseline assessment, interim restoration and long term planning*.

Task	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Jul-Sep 00	Quarterly Budget Oct-Dec 00	Total Budget
Task 1 Baseline assessments	5000	5000	5000	5000	\$20,000
Task 2 Interim restoration and startup stewardship	2500	2500	2500	2500	\$10,000
Task 3. Long term restoration and management plan	5000	5000	5000	5000	\$20,000

*Quarterly budget prepared assuming grant award received on Jan 1, 2000.